

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE  
in its capacity as elected Office

Date of mailing (day/month/year) 22 October 2001 (22.10.01)	
International application No. PCT/US00/02684	Applicant's or agent's file reference 626.01-PCT
International filing date (day/month/year) 03 February 2000 (03.02.00)	Priority date (day/month/year)
Applicant MILJKOVIC, Dusan et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

29 August 2001 (29.08.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Farid ABBOU Telephone No.: (41-22) 338.83.38
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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/02684

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) :G01N 33/53, 33/566, 33/543

US CL :435/7.1; 436/501, 518

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/7.1, 4, 7, 8, 188; 436/501, 518, 526, 533, 538, 806, 824

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST, STN, MEDLINE, BIOSIS, SCISEARCH

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,731,337 A (LUOTOLA et al.) 15 March 1988 (15.03.98), see entire document, especially column 2, lines 3-24.	14-20
Y	US 5,817,458 A (KING et al.) 06 October 1998 (06.10.98), see entire document, especially column 6, lines 66-67 and column 7, lines 1-44.	14-20
A	US 4,614,712 A (BALDWIN et al.) 30 September 1986 (30.09.86), see entire document.	1-24
A	US 5,633,142 A (HERLYN et al.) 27 May 1997 (27.05.97), see entire document.	1-24
Y	US 5,821,066 A (PYLE et al.) 13 October 1998 (13.10.98), see entire document.	1-24

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents:	*T	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X*	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y*	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*&*	document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means		
*P* document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

24 APRIL 2000

Date of mailing of the international search report

21 JUN 2000

 Name and mailing address of the ISA/US  
 Commissioner of Patents and Trademarks  
 Box PCT  
 Washington, D.C. 20231

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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/02684

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,948,624 A (ROTHSCHILD et al.) 07 September 1999 (07.09.99), see entire document.	1-24
Y	US 5,965,142 A (DILLON et al.) 12 October 1999 (12.10.99), see entire document, especially column 13, lines 51-67 and column 14, lines 1-55.	1-24
Y	US 4,458,020 A (BOHN et al.) 03 July 1984 (03.06.84), see column 5, lines 30-68.	14-20
X	US 5,879,881 A (RUBENSTEIN) 09 March 1999 (09.03.99), see entire document, especially Example I.	14-20

## PCT

REC'D 30 OCT 2001

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

WIPO

PCT

(PCT Article 36 and Rule 70)

14

Applicant's or agent's file reference 626.01-PCT	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/02684	International filing date (day/month/year) 03 February 2000 (03.02.2000)	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC IPC(7): G01N 33/53 and US Cl.: 435/7.1		
Applicant STI INDUSTRIES		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>   </u> sheets.</p> <p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of report with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand 29 August 2001 (29.08.2001)	Date of completion of this report 30 September 2001 (30.09.2001)	
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer <i>Chris L. Chin</i> Chris L. Chin Telephone No. (703) 308-0196	

**I. Basis of the report****1. With regard to the elements of the international application:\***

- ☐ the international application as originally filed.
- ☒ the description:  
pages 1-13 \_\_\_\_\_ as originally filed  
pages None \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☒ the claims:  
pages 14 and 16 \_\_\_\_\_, as originally filed  
pages NONE \_\_\_\_\_, as amended (together with any statement) under Article 19  
pages 15 \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☒ the drawings:  
pages 1-4 \_\_\_\_\_, as originally filed  
pages None \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☐ the sequence listing part of the description:  
pages NONE \_\_\_\_\_, as originally filed  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**4. ☒ The amendments have resulted in the cancellation of:**

- ☒ the description, pages None
- ☒ the claims, Nos. None
- ☒ the drawings, sheets/fig None

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.  
PCT/US00/02684**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. STATEMENT**

Novelty (N)	Claims <u>1-24</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>1-24</u>	YES
	Claims <u>NONE</u>	NO
Industrial Applicability (IA)	Claims <u>1-24</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

Claims 1-24 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest a method and apparatus with the specific limitations recited in claims 1-24. Rubenstein (US Patent 5,879,881) discloses an apparatus that is similar to that used in claim 14 but the method for using the apparatus fails to teach the repeated contact with a test environment step recited in claim 14.

----- NEW CITATIONS -----



MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GW, ML, MR, NE, SN, TD, TG).

— with amended claims

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

13. The method of claim 1 wherein the step of detecting the bound antigen comprises detection of a fluorophor.
14. A method of detecting an antigen associated with a test environment, comprising:  
  
providing a plurality of microbeads, wherein the plurality of microbeads is coupled to a detector surface, and wherein a binding agent that specifically binds at least part of the antigen is coupled to the plurality of microbeads;  
  
repeatedly contacting the test environment with the detector surface such that a complex between the binding agent and the antigen is formed; and  
  
detecting the complex on the detector surface.
15. The method of claim 14 wherein the detector surface has a configuration selected from the group consisting of a flat configuration, a cylindrical configuration, and a spherical configuration.
16. The method of claim 14 wherein the detector surface and the microbeads comprise cellulose.
17. The method of claim 14 wherein the test environment comprises a liquid.
18. The method of claim 14 wherein the binding agent comprises an antibody.
19. The method of claim 14 wherein the step of detecting further comprises washing the complex.
20. The method of claim 14 wherein the step of detecting further comprises incubation of the complex with a secondary antibody.
21. An apparatus for detecting an antigen proximally associated with a test surface, comprising:  
  
a housing with a handle;